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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Re Appln. of: ROLAND HENGERER

Appln. No.: 10/766,738

Filed: January 27, 2004

For: DETERMINATION OF THE AGE,  
IDENTIFICATION AND SEALING OF A  
PRODUCT CONTAINING VOLATILE  
COMPONENTS

Examiner: Desta, Elias

Art Unit: 2857

Attorney Docket No: 10022/580

Mail Stop Appeal Brief-Patents  
Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450

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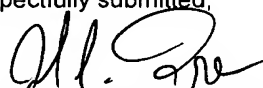
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Respectfully submitted,



John C. Freeman, Esq. (Reg. No. 34,483)

May 22, 2006  
Date



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Our Case No. 10022/580

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:	)	
	)	
Roland Hengerer	)	
	)	Examiner: Desta, Elias
Serial No. 10/766,738	)	
	)	Group Art Unit No. 2857
Filing Date: January 27, 2004	)	
	)	
For DETERMINATION OF THE AGE,	)	
IDENTIFICATION AND SEALING	)	
OF A PRODUCT CONTAINING	)	
VOLATILE COMPONENTS	)	

**APPEAL BRIEF**

Mail Stop Appeal Brief-Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

This Appeal is in response to the Office Action mailed December 19,  
2005<sup>1</sup>.

05/24/2006 AWONDAF1 00000008 10766738

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<sup>1</sup> A Notice of Appeal was filed on March 20, 2006. Since the Notice of Appeal was filed within three months of the mailing date of the Office Action and the present Appeal Brief is being filed within two months of the filing of the Notice of Appeal, the present Appeal Brief is timely filed.

I. **REAL PARTY IN INTEREST**

It is believed that Accenture Global Services GmbH is the real party of interest in this Appeal pursuant to the following: 1) a recorded assignment of the above-identified application to Accenture SAS executed by the inventor of record and 2) a present obligation for Accenture SAS to assign all rights in the above-identified application to Accenture Global Services GmbH. Efforts are presently underway to memorialize such an obligation in writing.

II. **RELATED APPEALS AND INTERFERENCES**

The undersigned, John C. Freeman, is not aware of any other appeals, interferences or other judicial proceedings that may be related to, would directly affect or be directly affected by or have a bearing on the Board's decision in the pending Appeal.

III. **STATUS OF CLAIMS**

The status of the claims is as follows:

Claims 1-12 are finally rejected under 35 U.S.C. § 101 for not being supported by either asserted utility or a well established utility.

Claims 1-12 are finally rejected under 35 U.S.C. § 112, first paragraph, for

not being supported by either asserted utility or a well established utility.

The above-mentioned rejections of claims 1-12 are the subject of this Appeal.

#### **IV. STATUS OF AMENDMENTS**

No Amendments or Responses have been filed prior to the filing of the present Appeal Brief in response to the Final Office Action mailed on December 19, 2005.

#### **V. SUMMARY OF CLAIMED SUBJECT MATTER**

An understanding of the invention of independent claims 1, 8-10 and 12 can be made upon a review of the embodiments of the invention shown in Figs. 1-2 of the specification. Note that in the description to follow, like elements will employ identical identification numerals.

Fig. 1 schematically shows an embodiment of a system that includes a central processing unit 1 receiving measurement signals S3 and S4 from an electronic nose 2 (Paragraph 0033). For example, the electronic nose 2 may be an acquisition peripheral of a computer performing the methods that will be described hereinafter (Paragraph 0037). Sensors 3 and 4 of the electronic nose

are disposed above a sample 5 to be analyzed (Paragraph 0033). The two sensors 3 and 4 are used for age determination (Paragraph 0035).

Each sensor in the sensor array responds specifically to a given chemical compound (Paragraph 0034). In that way, it is possible to obtain a "smell print" for a given chemical compound or mixture (Paragraph 0034). Conventionally, this signature or print is a set of digital readings or measurements corresponding to the reading from the set of sensors (Paragraph 0034).

The theory that is the basis for one or more of Appellant's inventions will be discussed presently. In particular, due to physical evaporation (and/or chemical decomposition) of a scent, the scent intensity of a given (single or composite) scent follows the following formula in close approximation:

$$I(t, \xi(t)) = I_0 \eta(\xi(t)) \cdot e^{-\alpha t},$$

where  $t$  designates time,  $I$  designates a measure for the scent strength measured quantitatively with a sensor of a known electronic nose,  $\alpha$  designates a time constant/decay rate depending on the volatile components of a scent, and  $\eta$  designates an unknown function taking into account all external parameters  $\xi$  such as temperature, atmospheric pressure, distance to the object, etc., for

which the evolution versus time is not necessarily known (Paragraphs 0023-0024).

Due to the unknown function  $\eta(\xi(t))$ , it is not possible to solve directly the above formula, even knowing the measured value  $I_0$  at a reference instant (Paragraph 0025). The scent signals may be measured for at least two different scents (two different sensors of the electronic nose with different decay constants ( $\alpha$ )) (Paragraph 0026). Consequently, the above formula applied to both scent signals can be expressed in the following manner, where indexes 1 and 2 designate the respective scents or sensors:

$$I_1(t, \xi(t)) = \eta(\xi(t)) I_{01} \cdot e^{-\alpha_1 t}, \text{ and}$$

$$I_2(t, \xi(t)) = \eta(\xi(t)) I_{02} \cdot e^{-\alpha_2 t} \text{ (Paragraph 0026).}$$

Since the two signals are always measured simultaneously, the term  $\eta(\xi(t))$  is essentially identical in both expressions (Paragraph 0027).

The ratio  $\sigma$  of the two measurement signals depends only on the time and on decay constants given by each sensor:

$$\sigma = \frac{I_2(t, \xi(t))}{I_1(t, \xi(t))} = \sigma_0 \cdot e^{(\alpha_1 - \alpha_2)t},$$

wherein  $\sigma_0$  designates a measured reference ratio at a reference time (for example, at the opening of a bottle or at the packaging of goods) (Paragraphs 0028 and 0029).<sup>2</sup> The ratio  $\sigma_0$  is measured at a reference time that defines the age zero of the product (Paragraph 0029). The scent ratio curve, such as that shown in Fig. 2, can be registered (Paragraph 0041).

Knowing the reference ratio  $\sigma_0$  and the decay constants  $\alpha_1$  and  $\alpha_2$ , the age  $t$  of the product from a reference instant is determined by the equation below:

$$t = (\alpha_1 - \alpha_2)^{-1} \cdot \ln \left( \frac{\sigma}{\sigma_0} \right) \text{ (Paragraph 0029).}$$

The constants  $\alpha_1$  and  $\alpha_2$  can be determined, for example during a learning step or a characterization step of the system, by measuring the scent intensity versus time of the corresponding volatile components when recorded with the sensors of the system (Paragraph 0031).

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<sup>2</sup> It is apparent that Equation (2) of Appellant's Specification should denote the ratio  $\sigma$  as being equal to  $I_2/I_1$ . Appellant will correct this after the Appeal has been decided.

The age  $t$  can be determined by using an equation or using the registered scent ratio curve (Paragraphs 0041 and 0042). The age  $t$  of an opened package of goods with volatile components can be used to determine the freshness of the goods (Paragraph 0003).

Besides determining the age and freshness of a product, it is possible to use smell prints of products for identification purposes, as each product, goods or object with volatile components has a unique scent print (Paragraph 0017). According to yet another exemplary embodiment, a scent print is sprayed on the surface of a product (Paragraph 0018). The scent print can be preregistered and preferably corresponds to a non-smelling scent (Paragraph 0018). Hence, the object is marked with an "invisible" scent print (Paragraph 0018). Furthermore, a volatile product identification code to a product only by spraying  $m$  ( $m = 2, 3, 4, \dots$ ) scents (or a composite scent containing  $m$  volatile components) on the product (Paragraph 0032). It is possible to mark the product at the time of packaging (for example, inside the package) or at the time of opening by spraying two scents on it (Paragraph 0044).

In another embodiment, sealing of an object is achieved by introducing into an impermeable seal, attached to or containing the object, at least two volatile components, the components being chosen for containing the respective



first and second scents to which the system is responsive (Paragraph 0049).

The reference scent ratio  $\sigma_0$  corresponds to the scent strengths ratio when sealing (Paragraph 0049). If the seal has been broken some of the volatile components will have leaked out so that a current scent ratio  $\sigma$  should differ substantially (by more than an acceptable error  $\varepsilon$ , *i.e.*,  $|\sigma - \sigma_0| > \varepsilon$ ) from the provided value for an intact seal which should be close to the initial value at instant zero (reference scent ratio  $\sigma_0$ ) (Paragraph 0049).

There are no means-plus-function terms or step-plus-function terms in independent claims 1, 8-10 and 12, which are argued separately below in Section VII.

## **VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

There are two grounds of rejection presented for review:

- 1) the rejection of claims 1-12 for not being supported by either asserted utility or a well established utility under 35 U.S.C. § 101; and
- 2) the rejection of claims 1-12 for not being supported by either asserted utility or a well established utility under 35 U.S.C. § 112, first paragraph.

## **VII. ARGUMENT**

### **A. 35 U.S.C. § 101**

#### **1. Claims 1-7**

Claims 1-7 were rejected in the Final Office Action of December 19, 2005 (hereinafter “the Final Office Action”) under 35 U.S.C. §101 for not being supported by either asserted utility or a well established utility. Appellant traverses the rejection for having no basis in fact or law. In particular, 35 U.S.C. § 101 states:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof may obtain a patent therefor, subject to the conditions and requirements of this title.  
35 U.S.C. § 101.

As stated in MPEP § 2107.01, the Federal courts have determined that 35 U.S.C. § 101 has two purposes: 1) determine if the claimed inventions are in a category of invention that is eligible for patent protection and 2) ensure that the claimed inventions are “useful.” Regarding the first purpose, claim 1 regards a method that includes measuring at least two scent strengths of an object. Since the recited method is a process, the claims are within a class of invention that is eligible for patent protection under 35 U.S.C. § 101. The Final Office Action at page 4 has not disputed that claim 1 is within a class of invention that is eligible

for patent protection.

The rejection of claim 1 appears to be based solely on the assertion that the claim is not “useful.” MPEP § 2107 sets forth various procedures for determining whether or not certain claimed inventions are “useful” pursuant to 35 U.S.C. § 101. For example, a claimed invention is “useful” when the following two conditions are met:

- 1) a person of ordinary skill in the art would immediately appreciate why the invention is useful based on the characteristics of the invention (e.g., properties or applications of a product or process); and
- 2) the utility is specific, substantial, and credible. MPEP § 2107 II.

In the present case, one of ordinary skill in the art would immediately appreciate the usefulness of the process of claim 1 related to determining the age of an object. For example, one of ordinary skill would immediately appreciate the usefulness of the claimed process for determining the age of perishable foodstuffs so as to avoid spoilage. Accordingly, the first condition is met for the invention of claim 1.

Regarding the second condition, Appellant's Specification gives a specific application for his invention that is substantial and credible. For example, Appellant's Specification states in paragraph 0002 that certain inventions, like

the inventions of claims 1 and 12, can be used for determining the age of a product.

The above discussion shows that Appellant's own Specification provides credible assertions that the invention of claim 1 has specific and substantial utility. Since Appellant needs "only provide one credible assertion of specific and substantial utility for each claimed invention to satisfy the utility requirement" per MPEP § 2107 II, the second condition for showing "usefulness" has been met and so the rejection is improper and should be withdrawn.

It is noted that the Final Office Action bases its rejection of claim 1 on the assertion that "the decay rate, which is the level of decomposition rate of the material under measurement, does not have a definite correlation with scent ratio because the outcome of the two variables is not formulated by a well-behaved function." Appellant traverses the assertion for several reasons. First, the characterization of the decay rate is incorrect. As defined in the claims, the decay rate corresponds to the time/decay constant  $\alpha$ <sup>34</sup>. As pointed out in the

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<sup>3</sup> The Office Action is correct that Appellant misspoke about the decay rate not being recited in the claims. That is obviously not the case in claims 1-9. Appellant apologizes for any confusion that their previous statement presented to the Examiner.

<sup>4</sup> The Final Office Action has objected to paragraph 0031 using the term time constant. Appellant sees no reason that the term needs to be changed. However, in order to expedite prosecution of the case, Appellant will change the terms "time constant" and "decay constant" to read as "decay rate" in the

example corresponding to equation (1) of Appellant's Specification, there are two time related factors that contribute to the scent intensity  $I$ , the unknown function  $\eta$  and the exponential term  $e^{-\alpha t}$ . Assuming that the rate of decomposition mentioned in the Final Office Action is meant to be the change over time of the intensity of the scent, then the rate of decomposition can be expressed as the derivative  $dI/dt = I_0 [(d\eta/dt) * e^{-\alpha t} - \eta \alpha e^{-\alpha t}]$ . Obviously, the decomposition rate  $dI/dt$  is not totally a function of the decay rate  $\alpha$ . Thus, the Final Office Action's characterization of the decay rate  $\alpha$  is incorrect.

The assertion is also incorrect because Appellant has presented a credible example where the scent ratio (denoted as  $\sigma$ ) is related to the decay rate  $\alpha$ . In particular, equation (2) of Appellant's Specification denotes that the scent ratio  $\sigma = \sigma_0 e^{(\alpha_1 - \alpha_2)t}$ . Paragraphs 0029 and 0031 of Appellant's Specification provide instructions on how to determine  $\sigma_0$ ,  $\alpha_1$  and  $\alpha_2$ . Upon determining the constants  $\sigma_0$ ,  $\alpha_1$  and  $\alpha_2$  the scent ratio  $\sigma$  turns out to be a simple exponential function, which is of course well-behaved.

The Final Office Action also asserts that the scent ratio "defined in the system as a whole may not produce real world value that provides substantial or well-established utility." This assertion has no merit. It is irrelevant to the issue at hand whether or not the scent ratio has a "real world value." The

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Specification once the present Appeal is ruled upon.

determination of the age of a product is one of the points of emphasis for Appellant's Specification. Equation (3) presented in Appellant's Specification gives an example of how the age,  $t$ , of a product can be determined. There can be no dispute that determining the age would produce a real world value that provides a substantial and well-established utility. That the determination of the age,  $t$ , depends on the determination of the scent ratio  $\sigma$  that which in itself may or may not have substantial or well-established utility is irrelevant. Indeed, the fact that Appellant has shown that the scent ratio can be used to determine the age  $t$  shows that the scent ratio has real world value.

The Final Office Action further asserts that "[t]he values sensed by the "electronic sensor" don't seem to have a specific value, like physiologically or chemically interpretable values (such as frequency, PH or concentration values)." Appellant traverses the assertion to the extent that it is not applicable to claim 1 which does not recite an "electronic sensor."

Claims 2-7 depend directly or indirectly on claim 1 and so their rejections are improper for the same reasons given above as to why the rejection of claim 1 is improper.

## 2. Claim 8

Claim 8 was rejected in the Final Office Action under 35 U.S.C. §101 for not being supported by either asserted utility or a well established utility.

Appellant traverses the rejection for having no basis in fact or law. Claim 8 regards a method that includes measuring at least two scent strengths of some goods. Since the recited method is a process, the claim is within a class of invention that is eligible for patent protection under 35 U.S.C. § 101. The Final Office Action at page 4 has not disputed that claim 8 is within a class of invention that is eligible for patent protection.

The rejection of claim 8 appears to be based solely on the assertion that the claim is not “useful.” In the present case, one of ordinary skill would immediately appreciate the usefulness of the process of claim 8 related to determining the freshness of goods. For example, one of ordinary skill would immediately appreciate the usefulness of using the invention of claim 8 to determine whether or not perishable foodstuffs are fresh. Accordingly, the first condition for establishing “usefulness” under 35 U.S.C. §101 is met for the invention of claim 8.

Regarding the second condition, Appellant's Specification states that an

aspect of Appellant's invention of claim 8 regards determining the amount of time that has passed since the opening of a product has occurred and, thus, freshness of commodities, such as bottled milk or wine can be determined (Paragraph 0003). Accordingly, the second condition for "usefulness" under 35 U.S.C. §101 has been met and so the rejection is improper and should be withdrawn.

It is noted that the Final Office Action bases its rejection on the assertion that "the decay rate, which is the level of decomposition rate of the material under measurement, does not have a definite correlation with scent ratio because the outcome of the two variables is not formulated by a well-behaved function." Appellant traverses the assertion for the same reasons given above in Section VII.A.1 with respect to claims 1-7.

The Final Office Action also asserts that the scent ratio "defined in the system as a whole may not produce real world value that provides substantial or well-established utility." As pointed out previously in Section VII.A.1, this assertion is improper since all that matters is that the determination of the age,  $t$ , produces a real world value. Since the freshness of goods is directly related to the age of the goods, the determination of the freshness also produces a real world value. Accordingly, the assertion has no merit. Furthermore, the fact that the scent ratio can be used to determine freshness of goods shows that the ratio



itself has real world value.

The Final Office Action further asserts that “[t]he values sensed by the “electronic sensor” don’t seem to have a specific value, like physiologically or chemically interpretable values (such as frequency, PH or concentration values).” Appellant traverses the assertion to the extent that it is not applicable to claim 8 which does not recite an “electronic sensor.”

### **3. Claim 9**

Claim 9 was rejected in the Final Office Action under 35 U.S.C. §101 for not being supported by either asserted utility or a well established utility. Appellant traverses the rejection for having no basis in fact or law. Claim 9 regards a method of marking an object with a volatile identification code that includes spraying at least two volatile components onto an object. Since the recited method is a process, the claim is within a class of invention that is eligible for patent protection under 35 U.S.C. § 101. The Final Office Action at page 4 has not disputed that claim 9 is within a class of invention that is eligible for patent protection.

The rejection of claim 9 appears to be based solely on the assertion that the claim is not “useful.” In the present case, one of ordinary skill would immediately appreciate the usefulness of the process of claim 9 related to a

method of marking an object with a volatile identification code. For example, one of ordinary skill would immediately appreciate the usefulness of using the invention of claim 9 to mark an object with a volatile identification code to avoid using a visible mark on a product. Accordingly, the first condition for establishing “usefulness” under 35 U.S.C. §101 is met for the invention of claim 9.

Regarding the second condition, Appellant’s Specification states that an aspect of Appellant’s invention of claim 9 regards marking a product with a scent print so as to avoid using visible marks on the product (Paragraphs 0018, 0044 and 0046). Accordingly, the second condition for “usefulness” under 35 U.S.C. §101 has been met and so the rejection is improper and should be withdrawn.

It is noted that the Final Office Action bases its rejection on the assertion that “the decay rate, which is the level of decomposition rate of the material under measurement, does not have a definite correlation with scent ratio because the outcome of the two variables is not formulated by a well-behaved function.” Appellant traverses the assertion to the extent that the invention of claim 9 does not recite a decay rate.

The Final Office Action also asserts that the scent ratio “defined in the system as a whole may not produce real world value that provides substantial or well-established utility.” Appellant traverses the assertion to the extent that the

invention of claim 9 does not mention a scent ratio.

The Final Office Action further asserts that “[t]he values sensed by the “electronic sensor” don’t seem to have a specific value, like physiologically or chemically interpretable values (such as frequency, PH or concentration values).” Appellant traverses the assertion to the extent that it is not applicable to claim 9 which does not recite an “electronic sensor.”

The rejection further states that claim 9 is indefinite because “the characteristics of the first and second volatile components is not known or defined.” Appellant traverses this rejection in that indefiniteness is not the province of a 35 U.S.C. § 101 rejection. Even if it was, the rejection has no merit. The term volatile component would have been well understood to one of ordinary skill in the art. Furthermore, the rejection appears to be an attempt to limit the characteristics of the recited first and second volatile components that define the recited “volatile identification code.” This is improper since it is the sole prerogative of the inventor to define his or her invention in the claims. 35 U.S.C. § 112, second paragraph.

#### **4. Claims 10 and 11**

Claims 10-11 were rejected in the Final Office Action under 35 U.S.C.

§101 for not being supported by either asserted utility or a well established utility. Appellant traverses the rejection for having no basis in fact or law. Claim 10 regards a method of sealing an object that includes introducing at least two volatile components into an impermeable seal attached to the object. Since the recited method is a process, the claim is within a class of invention that is eligible for patent protection under 35 U.S.C. § 101. The Final Office Action at page 4 has not disputed that claim 10 is within a class of invention that is eligible for patent protection.

The rejection of claim 10 appears to be based solely on the assertion that the claim is not “useful.” In the present case, one of ordinary skill would immediately appreciate the usefulness of the process of claim 10 related to a method of sealing an object. For example, one of ordinary skill would immediately appreciate the usefulness of using the invention of claim 10 to seal an object with a volatile component to discover or avoid having an object with a compromised seal. Accordingly, the first condition for establishing “usefulness” under 35 U.S.C. §101 is met for the invention of claim 10.

Regarding the second condition, Appellant’s Specification states at that an aspect of Appellant’s invention of claim 10 regards sealing an object so as to determine whether a seal has been broken and to ensure that the seal is intact

(Paragraph 0049). Accordingly, the second condition for “usefulness” under 35 U.S.C. §101 has been met and so the rejection is improper and should be withdrawn.

It is noted that the Final Office Action bases its rejection on the assertion that “the decay rate, which is the level of decomposition rate of the material under measurement, does not have a definite correlation with scent ratio because the outcome of the two variables is not formulated by a well-behaved function.” Appellant traverses the assertion to the extent that the invention of claim 10 does not recite a decay rate.

The Final Office Action also asserts that the scent ratio “defined in the system as a whole may not produce real world value that provides substantial or well-established utility.” Appellant traverses this assertion. As shown in equation (2) of Appellant’s Specification, the scent ratio  $\sigma$  is a well behaved exponential function that depends on the real world value of time,  $t$ , and the constant values of  $\sigma_0$ ,  $\alpha_1$  and  $\alpha_2$  which are determined per the instructions given in Appellant’s Specification. Since the scent ratio is readily determined by one of ordinary skill in the art, the scent ratio of claim 10 is a real world value.

The Final Office Action further asserts that “[t]he values sensed by the “electronic sensor” don’t seem to have a specific value, like physiologically or

chemically interpretable values (such as frequency, PH or concentration values).” Appellant traverses the assertion to the extent that it is not applicable to claim 10 which does not recite an “electronic sensor.”

It is noted that the “Response to Argument” section of the Final Office Action at page 4 states the following:

The preamble of the amended claim 10 is the method of sealing an object, and yet the steps stated in the claim are intended to determine a reference scent ratio. Hence, the scent ratio does not by any means constitute steps to provide well-established utility.

Appellant traverses the statement. The various elements of claim 10 are related to a method of sealing an object. For example, claim 10 recites introducing two volatile components into an impermeable seal. The later recited determination of scent strengths when the seal is unbroken and determining the reference scent ratio may be used to determine whether or not the integrity of the seal has been compromised as discussed in paragraph 0049 of Appellant’s Specification. All of the recited processes of claim 10 are related to the sealing of an object and so the statement does not show that the invention of claim 10 has no utility.

Claim 11 depends directly on claim 10 and so its rejection is improper for the same reasons given above as to why the rejection of claim 10 is improper.

**5. Claim 12**

Claim 12 was rejected in the Final Office Action under 35 U.S.C. §101 for not being supported by either asserted utility or a well established utility.

Appellant traverses the rejection for having no basis in fact or law. Claim 12 regards a system for determining an age of an object that includes generating signals from two sensors that are in response to two volatile components. Since the recited system is a machine, the claim is within a class of invention that is eligible for patent protection under 35 U.S.C. § 101. The Final Office Action at page 4 has not disputed that claim 12 is within a class of invention that is eligible for patent protection.

The rejection of claim 12 appears to be based solely on the assertion that the claim is not “useful.” Claim 12 recites a system for determining the age of a product. For reasons similar to those given above in Section VII.A.1, the invention of claim 12 meets the two requirements for demonstrating that an invention is “useful” under 35 U.S.C. § 101. Accordingly, the rejection is improper and should be withdrawn.

It is noted that the Final Office Action bases its rejection on the assertion that “the decay rate, which is the level of decomposition rate of the material

under measurement, does not have a definite correlation with scent ratio because the outcome of the two variables is not formulated by a well-behaved function.” Appellant traverses the assertion to the extent that the invention of claim 12 does not recite a decay rate.

The Final Office Action also asserts that the scent ratio “defined in the system as a whole may not produce real world value that provides substantial or well-established utility.” Appellant traverses this assertion for reasons similar to those given above in Section VII.A.4 with respect to claim 10

The Final Office Action further asserts that “[t]he values sensed by the “electronic sensor” don’t seem to have a specific value, like physiologically or chemically interpretable values (such as frequency, PH or concentration values).” Appellant traverses the assertion. In particular, the assertion appears to be an attempt to limit Appellant’s invention to detecting a specific physiologically or chemically interpretable value. This is improper for reasons similar to those given above in Section VII.A.3. It is permissible for the claims to encompass subject matter, such as values that don’t have a specific physiologically or chemically interpretable value, that are not disclosed in Appellant’s Specification. *Ralston Purina Co. v. Far-Mar-Co, Inc.*, 772 F.2d 1570, 227 USPQ 177 (Fed. Cir. 1985).



It should be noted that Appellant's Specification does state in paragraph 0026 that in an embodiment of the invention the signals detected by the sensors can be related to the scent signal  $I_1$  measured by one sensor and the scent signal  $I_2$  measured by a second sensor. Since the scent signals  $I_1$  and  $I_2$  regard the strength or intensity of a scent which is a common and specific physiologically or chemically interpretable value, the rejection has no merit regarding claim 12.

In summary, the rejections of claims 1-12 under 35 U.S.C. § 101 have no merit since the claims do have utility as shown previously. Furthermore, the Final Office Action has failed to provide a prima facie showing of no specific and substantial credible utility as required under MPEP § 2107 II. The Final Office Action has not provided any documentary evidence to support its rejection. All the Final Office Action has provided are mere assertions which are not based on any credible scientific fact or reason. Indeed, a reading of Appellant's own specification reveals that there is ample evidence to one of ordinary skill in the art that there is specific and substantial credible utility for the inventions of claims 1-12. Accordingly, the rejections under 35 U.S.C. § 101 should be withdrawn.

**B. 35 U.S.C. § 112, First Paragraph**

**1. Claims 1-7**

Claims 1-7 were rejected in the Final Office Action under 35 U.S.C. § 112, first paragraph, because the claimed invention is not supported by either a substantial asserted utility or a well established utility. Appellant traverses this rejection for at least the same reasons given above in Section VII.A.1.

**2. Claim 8**

Claim 8 was rejected in the Final Office Action under 35 U.S.C. § 112, first paragraph, because the claimed invention is not supported by either a substantial asserted utility or a well established utility. Appellant traverses this rejection for at least the same reasons given above in Section VII.A.2.

**3. Claim 9**

Claim 9 was rejected in the Final Office Action under 35 U.S.C. § 112, first paragraph, because the claimed invention is not supported by either a substantial asserted utility or a well established utility. Appellant traverses this rejection for at least the same reasons given above in Section VII.A.3.

**4. Claims 10 and 11**

Claims 10 and 11 were rejected in the Final Office Action under 35 U.S.C. § 112, first paragraph, because the claimed invention is not supported by either

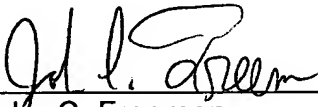
a substantial asserted utility or a well established utility. Appellant traverses this rejection for at least the same reasons given above in Section VII.A.4.

**5. Claim 12**

Claim 12 was rejected in the Final Office Action under 35 U.S.C. § 112, first paragraph, because the claimed invention is not supported by either a substantial asserted utility or a well established utility. Appellant traverses this rejection for at least the same reasons given above in Section VII.A.5.

For the reasons give above, Appellant respectfully submits that the rejections should be withdrawn and the claims should be allowed.

Respectfully submitted,

  
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John C. Freeman  
Registration No. 34,483  
Attorney for Appellant

BRINKS HOFER  
GILSON & LIONE  
P.O. Box 10395  
Chicago, Illinois 60610  
(312) 321-4200

Dated: May 22, 2006

## VIII. CLAIMS APPENDIX

1. A method for determining an age of an object comprising:  
measuring a first strength of a first scent of said object with a first electronic sensor, a decay rate ( $\alpha_1$ ) of said first scent being known;  
measuring simultaneously a second strength of a second scent of said object with a second electronic sensor, a decay rate ( $\alpha_2$ ) of said second scent being known  
calculating a current scent ratio ( $\sigma$ ) of said first and second scent strengths; and  
determining said age of said object starting from a reference time for which a reference scent ratio ( $\sigma_0$ ) of said scent strengths has been registered.
2. The method of claim 1, wherein said determining is performed by applying to said current scent ratio  $\sigma$  the following formula giving said age of said object as represented by the symbol  $t$ :

$$t = (\alpha_1 - \alpha_2)^{-1} \cdot \ln \left( \frac{\sigma}{\sigma_0} \right),$$

where  $\sigma_0$  designates said reference scent ratio, and  $\alpha_1$  and  $\alpha_2$  designate said first and second decay rates of said first and second scents respectively.

3. The method of claim 1, wherein said determining is performed by comparing said current scent ratio ( $\sigma$ ) to preregistered data corresponding to respective age values.

4. The method of claim 1, wherein said reference scent ratio ( $\sigma_0$ ) is determined by measuring said first and second scent strengths at an initial time from which said age of said object is to be determined.

5. The method of claim 1, wherein said first and second decay rates ( $\alpha_1$ ,  $\alpha_2$ ) are determined during a process of characterizing of sensors measuring said first and second scents.

6. The method of claim 1, wherein said first and second scents are included in at least one volatile compound sprayed on said object.

7. The method of claim 6, wherein said reference scent ratio ( $\sigma_0$ ) is preregistered and corresponds to said first and second scent strengths when spraying said compound.

8. A method of determining a freshness of goods from a reference time, comprising:

measuring a first strength of a first scent of said goods with a first electronic sensor, a decay rate ( $\alpha_1$ ) of said first scent being known;

measuring simultaneously a second strength of a second scent of said goods with a second electronic sensor, a decay rate ( $\alpha_2$ ) of said second scent being known

calculating a current scent ratio ( $\sigma$ ) of said first and second scent strengths; and

determining said freshness of said goods starting from a reference time for which a reference scent ratio ( $\sigma_0$ ) of said scent strengths has been registered.

9. A method of marking an object with a volatile identification code, comprising:

spraying a first volatile component onto said object; and

spraying a second volatile component onto said object, wherein characteristics of said first and second volatile components sprayed on said object define said volatile identification code.

10. A method of sealing an object, comprising:

introducing into an impermeable seal attached to said object a first volatile component;

introducing into said impermeable seal a second volatile component;

simultaneously determining a first scent strength of said first volatile component and a second scent strength of said second volatile component at a time when said impermeable seal is unbroken; and

determining a reference scent ratio ( $\sigma_0$ ) from said first scent strength and said second scent strength.

11. The method of claim 10, further comprising:

simultaneously determining a first scent strength of said first volatile component and a second scent strength of said second volatile component at a second time that is subsequent to said time when said impermeable seal is unbroken; and

determining a current reference scent ratio ( $\sigma_0$ ) from said first scent strength and said second scent strength that are determined at said second time, wherein said seal is considered to have been broken if said current scent ratio ( $\sigma$ ) differs from said reference scent ratio ( $\sigma_0$ ) by more than an acceptable error  $\varepsilon$ .

12. A system for determining an age of a product containing first volatile component and a second volatile component, comprising:

a first electronic sensor that generates a first signal in response to a first scent of said first volatile component;

a second electronic sensor that generates a second signal in response to a second scent of said second volatile component;

a calculating unit for calculating a current scent ratio ( $\sigma$ ) based on said first and second signals, and for extracting said age of said object from a reference time for which a reference scent ratio ( $\sigma_0$ ) is registered.



IX. **EVIDENCE APPENDIX**

None.

X. RELATED PROCEEDINGS APPENDIX

None.